

U.S. Patent Application Serial No. 09/916,314
Response dated September 23, 2003
Reply to OA of June 23, 2003

IN THE CLAIMS

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Please cancel claim 3 without prejudice or disclaimer.

Please amend claims 2 and 20 as follows:

[1. (Canceled).]

2. (Currently Amended): An organic EL element comprising:
an organic EL layer formed between an anode and a cathode; and
said cathode consisting of a first conductive film that contacts to said organic EL layer and
a second conductive film that constitutes a laminated structure together with said first conductive
film, said first conductive film containing any one of an alkaline metal and an alkaline earth metal,
and

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said second conductive film containing any one of at least one type metal selected from a the
group consisting of Ru (ruthenium), Rh (rhodium), Ir (iridium), Os (osmium), ~~and~~ Re (rhenium) and
~~its oxide~~ the oxides of Ru, Rh, Ir, Os and Re.

[3. (Canceled).]

4. (Withdrawn): An organic EL element manufacturing method comprising the steps of:
forming an anode on a substrate;
forming an organic EL layer on said anodes;
forming a first conductive film, that contains any one of an alkaline metal and an alkaline

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earth metal, on said organic EL layer; and

forming a second conductive film laminated on said first conductive film and containing a metal that is able to prevent entering of an oxygen and a moisture into said first conductive film when said metal is oxidized.

5. (Withdrawn): An organic EL element manufacturing method according to claim 4, wherein said second conductive film contains any one of at least one type metal selected from a group consisting of Ru (ruthenium), Rh (rhodium), Ir (iridium), Os (osmium) and Re (rhenium) and its oxide.

6. (Withdrawn): An organic EL element manufacturing method according to claim 4, wherein said second conductive film is formed of any one of a TiN film and a laminated film made of TiN and Ti.

7. (Withdrawn): An organic EL element comprising:
an anode;
a buffer layer which is formed of at least one type metal selected from a group consisting of Ru, Mo, and V on said anode and a surface of which is oxidized;
an organic EL layer formed to be contacted to an oxidized surface of said buffer layer; and
a cathode formed on said organic EL layer.

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8. (Withdrawn): An organic EL element according to claim 7, wherein said cathode contains any one of an alkaline metal and alkaline earth metal.

9. (Withdrawn): An organic EL element manufacturing method comprising the steps of:
forming an anode on a substrate;
forming a buffer layer, which contains at least one type metal selected from a group consisting of Ru, Mo, and V, on said anode;
oxidizing a surface of said buffer layer;
forming an organic EL layer on said buffer layer; and
forming a cathode.

10. (Withdrawn): An organic EL element manufacturing method according to claim 9, wherein said cathode contains any one of an alkaline metal and an alkaline earth metal.

11. (Withdrawn): An organic EL display device comprising:
a substrate;
a lower electrode formed on said substrate;
an organic EL layer formed on said lower electrode to have areas in which a conjugate length of polymer is different each other so that these areas have two different luminous colors or more; and
an upper electrode formed on said organic EL layer.

12. (Withdrawn): An organic EL display device manufacturing method comprising the steps of:

forming a first electrode on a substrate;

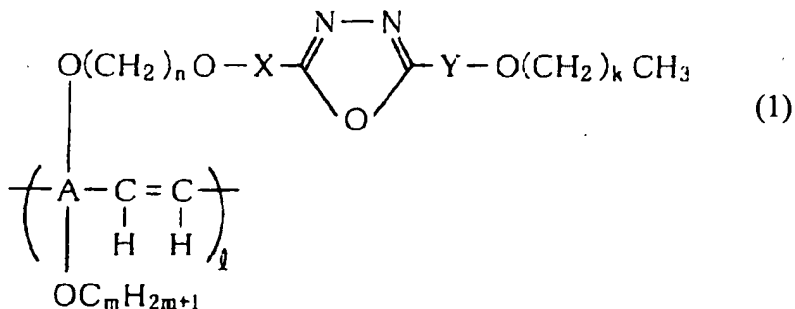
forming an organic EL layer formed of organic EL material, in which a conjugate length of polymer is changed in response to light irradiation, on said first electrode;

irradiating partially a light onto said organic EL layer to change said conjugate length; and

forming a second electrode on said organic EL layer.

13. (Withdrawn): Organic EL material consisting of:

material made of organic material expressed by a general formula (1)



(Where A is a residue obtained by removing at least four hydrogen atoms from an aromatic compound or a heterocyclic compound,

X is an atomic group to which at least two groups that are selected from a group consisting

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of a residue obtained by removing at least two hydrogen atoms from benzene and a residue obtained by removing at least two hydrogen atoms from cyclohexane are bonded,

Y is an atomic group to which a residue obtained by removing at least two hydrogen atoms from benzene is bonded or at least two residues each obtained by removing at least two hydrogen atoms from benzene are bonded, and

k, m and n are an integer respectively.)

14. (Withdrawn): Organic EL material according to claim 13, wherein n in said general formula (1) is an integer to satisfy a condition of $5 \leq n \leq 15$, and k is an integer to satisfy a condition of $5 \leq k \leq 15$.

15. (Withdrawn): Organic EL material according to claim 13, wherein A in said general formula (1) is a residue that is obtained by removing four hydrogen atoms from benzene.

16. (Withdrawn): Organic EL material according to claim 13, wherein X in said general formula (1) contains any atomic group in which a biphenylene group or a phenylene group and a cyclohexylene group are bonded.

17. (Withdrawn): Organic EL material according to claim 13, wherein Y in said general

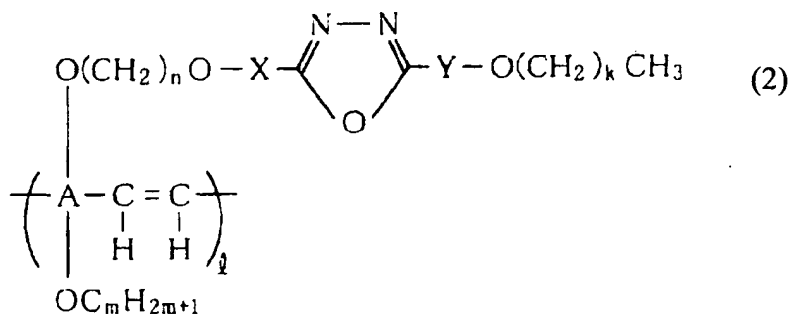
formula (1) is a phenylene group.

18.(Withdrawn): A plane emission device employing organic material, comprising:
 a transparent substrate;

a transparent conductive film for covering one surface of said transparent substrate;

an alignment film formed on a surface of said transparent conductive film;

a luminous layer made of organic material expressed by a general formula (2)



(Where A is a residue obtained by removing at least four hydrogen atoms from an aromatic compound or a heterocyclic compound,

X is an atomic group to which at least two groups that are selected from a group consisting of a residue obtained by removing at least two hydrogen atoms from benzene and a residue obtained by removing at least two hydrogen atoms from cyclohexane are bonded,

Y is an atomic group to which a residue obtained by removing at least two hydrogen atoms

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from benzene is bonded or at least two residues each obtained by removing at least two hydrogen atoms from benzene are bonded, and

k, m and n are an integer respectively.); and

an electrode layer formed on a surface of said luminous layer.

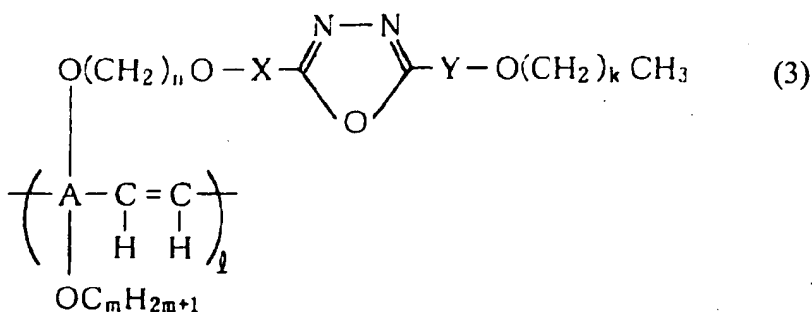
19. (Withdrawn): A display device employing organic material, comprising:

a transparent substrate;

a transparent conductive film for covering one surface of said transparent substrate;

an alignment film formed on a surface of said transparent conductive film;

a luminous layer made of organic material expressed by a general formula (3)



(Where A is a residue obtained by removing at least four hydrogen atoms from an aromatic compound or a heterocyclic compound,

X is an atomic group to which at least two groups that are selected from a group consisting

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of a residue obtained by removing at least two hydrogen atoms from benzene and a residue obtained by removing at least two hydrogen atoms from cyclohexane are bonded,

Y is an atomic group to which a residue obtained by removing at least two hydrogen atoms from benzene is bonded or at least two residues each obtained by removing at least two hydrogen atoms from benzene are bonded, and

k, m and n are an integer respectively.);

an electrode layer formed on a surface of said luminous layer;

a liquid crystal layer arranged on a second surface on an opposite side to said first surface of said transparent substrate; and

a polarizing plate arranged on said liquid crystal layer.

20. (Currently Amended): An organic EL element comprising:

an organic EL layer formed between an anode and a cathode; and

said cathode consisting of a first conductive film that contacts to said organic EL layer and a second conductive film that constitutes a laminated structure together with said first conductive film, said first conductive film containing any one of an alkaline metal and an alkaline earth metal, and said second conductive film is formed of a laminated film consisting of:

a conductive film containing any one of at least one type metal selected from a the group consisting of Ru, Rh, Ir, Os, ~~and Re and its oxide~~ the oxides of Ru, Rh, Ir, Os and Re, and

any one of a TiN film and a laminate film formed of a Ti film and a TiN film on said Ti film.